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ABSTRACT

To help students learn to navigate the information superhighway, a 2-hour pilot program with 10 hours of guided access time was developed to test a method for teaching the basics of maneuvering the superhighway and extracting information once located. This pilot was designed as a two-part instructional session. The first instructional session (Part 1) consisted of a seminar with explanations of global access to information. The second session (Part II) was a hands-on workshop allowing participants textual access via Unix and graphical user interface through America Online. The pilot program with graduate students provided information that enabled the restructuring of the course for graduate students in education. It demonstrated that a prerequisite was student familiarity with the computer, an objective addressed through a commercially available interactive tutorial. A second interactive CD-ROM was added to introduce the Internet. The graphical user interface was changed for cost reasons to an interface available on campus. Workbooks developed for the Computers in Education course were added. (Contains six references.) (SLD)

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Skill Development for Maneuvering on the Information Highway

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Background

The information superhighway is one of our most pivotal realities to change in academia and industry. Curiously enough, advocacy of its use is quite similar to the claims and promises made when Guttenburg's printing press also became a reality (Breinin, 1993; Dede, 1981). Our dream of a race of scholars is still a distant cloud adrift in the future; and although tremendous strides have been realized in the number of individuals who can now read and comprehend, illiteracy is still alive and well (Kirsch, Jungeblut, Jenkins & Kolstad, 1993). Some believe that technology may be our greatest obstacle (Gelernter, (1994). Others, like Simons (1994, p. 170) differ, yet take alternate routes to bridge the gap by providing one of the most extensive lists of concerns which need to be addressed regarding privacy issues, security breaches, decreases in social skills, and technological evils associated with using the information superhighway. And like our physical superhighways, the information superhighway will bring, among other things, its own crashes, traffic jams, and toll bridges (Newmann, 1994). We have gone too far to turn back, however, forging ahead simply means taking appropriate action whenever and wherever possible to ensure participants within our information society possess the knowledge, skills, and attitudes for proper and successful use of this new technology.

Our Beginnings

With all the hype regarding the Internet and the National Information Infrastructure (NII), the true meaning of global information became a topic of concern at our institution. Easy access was not enough. Students seemed to need something more. And that something more was a structured approach to their options for full participation in our informational society. We decided to offer students an opportunity to better prepare themselves for the competitive work world by developing their cognitive skills while utilizing technology. Specifically, they were

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required to use their communication skills, critical thinking skills, analytical skills and problem-solving skills to explore the many avenues of information available on the superhighway. Our primary concern was to get them fully operational on the superhighway and simultaneously investigate their perceptions of (a) how the superhighway might be used in the workplace, (b) the benefits and risks of global access to information, and (c) how such a skill might increase their marketability in the work world.

Our Teaching Technique

A two-hour pilot program with 10 hours of guided access time was developed to test our method for instructing students in the basics of maneuvering along the superhighway and extracting information once located. The pilot was designed as a two-part instructional session. Part I consisted of a seminar with complete explanations as to what global access to information really meant. Part II consisted of a hands-on workshop session developed to provide participants with textual access via Unix, and graphical user interface (GUI) access via Online America. Graduate students with current work experience were our pilot participants because we knew they would be able to offer us immediate feedback on specific workplace needs and tasks. We were also sure they could provide us with follow-up information regarding work-related problems they encountered during the 10 hours of guided access time and subsequent usage in the workplace. We were quite pleased with the results.

Computers In Education: Our New Frontier

The pilot program provided us with the fuel we needed to restructure our Computers in Education course offered to graduate students in the School of Education. This course assists current teachers, future teachers, and individuals in industry with implementing computers in learning environments. We discovered that two-hours was not enough time to address the needs of students with neophyte computer skills. Because our Computers in Education course was never meant to be a beginner's introduction to the computer, our first priority was to ensure that each student had an acceptable working knowledge of computers. We purchased an excellent interactive CD-ROM entitled, "Easy Tutor: Learn Computers," which provided (a) basic knowledge via a personal instructor on video (b) hands-on practice on actual word processing, spreadsheets, databases, and desk top publishing applications, and (c) quizzes and games to verify learning. Use of the CD-ROM has been included in the curriculum and is currently undergoing testing.

Working the information superhighway component into the Computers in Education course was simplified through the discovery and use of another interactive CD-ROM entitled, "The Internet for Everybody." A personal instructor on video guides you through a marvelous journey via simulations. It served as an excellent introduction to the "abstract concept" and allowed each student to move at his or her own individual pace. Immediately following use of the Internet CD-ROM, students were able to experience the phenomena and become electronic travelers for the entire semester.

Our primary objective continues to be enhancing skill development for utilizing technology while incorporating the issue of global access to information. We also feel there is a definite need to increase student awareness for multiple avenues of access to the superhighway. Our pilot program helped us target technology resources through the campus. As a result, we were able to provide our student with Internet access via three computer platforms: IBM- and IBM-compatible personal computers, Macintosh, and dumb terminals. Ironically, several students decided to purchase their own multimedia computers with built-in modems and communications software.

Assignments were carefully designed to develop exploratory and investigative skills, and to encourage the sharing of resources. As a result, students discovered numerous databases containing volumes of information pertinent to their fields and their interests. For example, one student with an interest in music accidentally stumbled upon a directory of musical artists and their upcoming musical releases. Her reaction was, "Wow! Look at what I found!" does not adequately describe her motivation for future access and exploration. Another example was a student in Adult Education who located an exclusive database on adult literacy issues. She has since taken most of the information she located on adult education services, grant information, and telephone numbers to numerous social services for adults in crisis situations to her professor for dissemination to their class.

Our method of instruction for the Computers in Education course was different from that of our pilot because the Online America services proved to be too expensive. Instead, we first exposed our students to textual interfaces to the Internet, and gradually moved them to a graphical user interface (GUI) called Mosaic which was available on our campus. We discovered that students felt more competent knowing how to use both interfaces and returned to their respective work environments ready to assist others in gaining this skill.

This method was effective because, as per the pilot, the combination of educational strategies with training strategies which emphasized hands-on practice proved to be the most beneficial approach because our Computer in Education course allocates 50% of class time towards the actual usage of computers. In addition, our method required the use of workbooks designed specifically for the Computers in Education course by graduate students in our Instructional Design course.

Approximately 65% of the students in Computers in Education are teachers. The remaining students have jobs in business and industry. Several possess undergraduate degrees in Mass Communications and Journalism. Currently, we have experienced twice as many students attempting to take this course as we did one year ago. Most of the overflow of students have majors outside of the School of Education. Suffice it to say, skill development on the Internet appears to be a very high demand skill among graduate students at our university.

Two additional courses within the School of Education are undergoing pilot testing of the Internet component. We are currently monitoring their success with our method. We strongly believe this method can be implemented within most courses of instruction regardless of the

subject matter because the Internet provides access to information on all topics. Some modifications might be necessary, however, good skill development is a definite outcome.

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